

## Policy & Procedure (P&P)

Policy Title :

### Preparation of Platelet Concentration

Department	Index No.	Scope
Laboratory & Blood Bank	LAB-059 LINKED TO LAB 056 REVEOS	All Blood Bank staff
Issue Date	Revision NO	Effective Date
1437/06/10	3	1441/7/19
Review Due Date	Related Standard NO.	Page Number#
1443/7/19	CBAHI (LB. 43)	5

#### 01. Policy:

Platelets components are prepared by separating the platelets from whole blood **within 8 hours of collection.**

#### 02. Definition :

N/A

#### 03. Purpose :

Separation of platelets from blood cellular component to provide it to all cases of thrombocytopenia and platelet dysfunction to protect and treat patients from bleeding.

#### 04. Procedure :

The donation time should be complete with 15 minutes. **Donor must not have been taking any anti-platelet drugs such as aspirin for 36 hours prior to donation.** If aspirin have been taking < 36 hours, the unit should not be used for platelet concentrate.

##### 04.1. Materials

- 04.1.1. Refrigerated centrifuge
- 04.1.2. Freshly collected whole blood
- 04.1.3. Plastic clips
- 04.1.4. Dielectric sealer
- 04.1.5. Plasma extractor





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04.1.6. Balance and small weights

04.1.7. Platelet agitator (20 – 24°C)

#### 04.2. Preparation Methods

04.2.1. The unit of blood on collection should not be refrigerated but kept at room temperature preferably 22 C and separated within 8 hours after completion of phlebotomy.

04.2.2. The blood is centrifuged for a light spin (2600 rpm for 7 minutes) at a temperature of 22 C after which 90% plasma is expressed into a satellite pack. Seal the tubing between the main pack and the satellite packs and cut.

04.2.3. The platelet rich plasma (PRP) is then re-centrifuged – heavy spin (4000 rpm for 7 minutes) at a temperature of 22 C to concentrate the platelets.

04.2.4. The platelet supernatant plasma is expressed in a satellite bag leaving 30-50ml plasma on the platelets to maintain an acceptable pH (6.2 or higher for the entire storage period). Seal tubing and cut as before.

#### Preparation of the leukoreduced platelets components LR-PC

- We have to use a special platelet pooling set with WBC filter.
- Before you begin pooling and filtering the interim platelet unit IPU's , you must rest and agitate the IPU's
- Prepare the leukoreduction rack: platelet pooling sets and the patch of platelets.
- Close all the clamps on the platelet pooling set.
- Sterile connect the platelet unit to the blue striped tube, use the minimum amount of tubing needed to complete the sterile connection procedure : here we are using the WELDER machine.
- Sterile connect 4 to 6 platelet units that have been rested and agitated, to the platelet pooling set using pooling tubes.
- Hang all the platelet units bags from a single filtration hook.
- Open sterile connection seals on each pooling tube and solution line tube.
- Ensure that all lines are free of kinks or other obstructions and the leukoreduction filter hangs



vertically.

- Open the clamp on the line to the filter and allow the platelets to flow through the leukoreduction filter and into the pooled platelets storage bag.
- After filtration is complete, close all the clamps on the platelet pooling set.
- Disconnect the pooled platelet storage bag that contains the pooled platelet product from the platelet pooling set.
- Discard the empty platelet units bags and the leukoreduction filter assembly in the biohazard waste.
- Open the clamp on the line between the pooled platelet storage bag and the sample pouch and express residual air from the storage bag into the sample pouch. We can squeeze a small amount of platelet for culture and bacterial detection.
- Disconnect the sample pouch from the pooled platelet storage bag.
- Disconnect the needle on the sample pouch by the sealer, discard the needle in the sharp container and the pouch in the biohazard bag.

04.2.5. The platelet concentrate is left undisturbed for 1-1/2 hours to allow micro-aggregates to dissolve. It is then gently shaken to resuspend the platelets.

04.2.6. They are then continuously agitated in the platelet incubator at 20 – 24°C. The bag is labeled as mentioned before in plasma preparation.

#### 04.3. Expiration:

Single units: 5 days

4 hours after opening the platelet unit.

#### 04.4. Transportation:

Platelets components are transported in properly insulated container as close as possible to 20-24 C

#### 04.5. Storage

04.5.1. They are stored under properly controlled conditions between 20 – 24°C with continuous agitation in the platelet incubator.

04.5.2. Do not refrigerate

04.5.3. Do not store on patient units or in operating room.



04.5.4. Platelets should be inspected before issue to ensure that no platelet aggregates are visible.

#### 04.6. Quality Control

##### 4.6.1. Standard platelet units

04.6.1. expired (6th day) units of platelet products checked for platelet count and PH, every month to ensure the therapeutic efficiency of the product.

04.6.2. 90% of the subjected units have a platelet count of  $5.5 \times 10^{10}$  platelets/unit or more and a minimum pH of 6.2

##### 4.6.2. Quality control of leukoreduced platelets components: LR-PC

1% of the quarterly production of the leukoreduced platelet components LR-PC but not less than 12 units every 3 months are subjected to quality control testing .

All tested LR-PC units have a platelet recovery rate of more than 85% and a residual WBC count of less than  $8.3 \times 10^5$  WBC/unit or  $5 \times 10^6$  WBC/pool of 6 units .

If results were not accepted , corrective action should be implemented.

#### 05. Responsibilities :

All laboratory & Blood Bank staff of Al-Qunfudah General Hospital.

#### 06. Equipment & Forms

Platelets Quality Control Records

Platelets transportation record.

#### 07. Attachment :

Link to LAB-060 Blood components preparation using REVEOS automated blood processing System

#### 08. Reference

The Technical manual of the American Association of Blood Banks.

The unified Practical Procedure Manual for Blood Banks in The Arab Countries





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